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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/004,512 | 10/26/2001 | Thomas M. Walley | 10010478-1 | 4649 |

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

MEYER, DAVID C

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/004,512

Applicant(s)

WALLEY, THOMAS M.

Examiner

David C Meyer

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumar et al (US 6,204,852) in view of Schick et al (US 6,175,647).

Regarding claim 1, Kumar et al discloses a gesture-based three-dimensional interface system **10** comprising a computer **12**, a display **14**, cameras **16,18** for monitoring a zone **28** in which a user places a hand **26**, and lenses **30,36** for directing images of the user's hand onto the respective two-dimensional image planes **32,38** of the cameras. Hand images from the camera are converted to a digital format and input to the computer for processing. The computer identifies hand gestures and movements based on these images. (See column 5, line 13 to column 6, line 17.)

Kumar et al discloses an arrangement in which 3D position and motion information is obtained using a stationary sensor (the cameras) and a mobile reference object (the user's hand). Schick et al teaches a different but equivalent system for generating 3D position information having a mobile sensor (CCD cameras **35** attached to a probe **4**) and a fixed reference object (target area **2**). It would have been obvious to one of ordinary skill in the art at the time of invention to exchange the arrangement of Kumar et al for the arrangement of Schick et al as desired because they both generate

3D position information based on the *relative* movement of a sensor and a reference object for providing a far-field image.

Claim 8 is a method claim relating closely to apparatus claim 1. As such, the rejection of claim 1 applies equally to claim 8, with the following modification. Kumar et al does not disclose that subsequent sets of digital representations of images captured by the first and second cameras are correlated to yield motion data. However, Kumar et al does disclose that three-dimensional position coordinates and orientation angles are tracked (column 5, line 66 to column 6, line 5), implying that they are followed or related over time. It is well known to correlate subsequently obtained digital images to generate relative motion information. It would have been obvious to one of ordinary skill in the art at the time of invention to include a correlation step to aid in the tracking of the three-dimensional motion of a user's hand in order to obtain more accurate relative motion information.

Claim 15 is an apparatus claim relating closely to apparatus claim 1. As such, the rejection of claim 1 applies equally to claim 15, with the following modification. Computer **12** constitutes a controller coupled to first and second cameras **16,18**. Each camera includes a lens for directing images of a user's hand onto its two-dimensional image plane.

Regarding claims 2-4, 9-11, and 16-18, the invention of Kumar et al detects both translational and rotational movements of the user's hand. Kumar et al discloses that the computer determines the position and orientation, or angle, of the user's hand using the images captured by the cameras (column 7, line 58 to column 8, line 8). Again, the

examiner acknowledges the equivalency of an arrangement in which a sensor moves relative to a fixed reference object and an arrangement in which a fixed sensor captures images of a mobile reference object.

Regarding claim 5, Kumar et al discloses separate lenses **30,36** which direct images of the user's hand onto the respective image planes **32,38** of the cameras.

Regarding claims 6-7 and 12-13, Kumar et al discloses cameras that are oriented at an angle to one another (Figs. 1 and 5). Kumar et al does not disclose that the cameras are oriented perpendicularly. It would have been obvious to one of ordinary skill in the art at the time of invention to orient the cameras perpendicularly depending on the location and dimension of the specific zone to be monitored.

Regarding claim 14, the invention of Kumar et al has a display screen **14** for displaying a three-dimensional environment to a user. A user's recognized gestures effectuate computer commands (column 5, lines 13-33).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Van Wagoner (US 5,150,169) discloses an apparatus for measuring the relative position between two points, wherein each of three two-dimensional detector arrays is oriented perpendicularly with respect to the other two.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C Meyer whose telephone number is 703-305-7955. The examiner can normally be reached on M-F 8:30-5:30.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0935.

DCM
March 3, 2003


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800